NE Introduction

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Abstract:

This paper introduces New Electromagnetism (NE) by comparing NE to Classical Electromagnetism (CE). It also shows the evolution of NE (version 1 to version 3) and the reasoning behind New Electromagnetism.

This paper also introduces many of the free documents found at our website.

All PDF files described in the document can be found at www.distinti.com/docs

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1 Classical Electromagnetism (CE)

In order to compare NE to CE, it is necessary to form (or re-derive) CE into point-to-point forms similar to NE such that a comparison between the two is meaningful. These re-derivations are found throughout the many free publications at our site (all pdf files found in www.distinti.com/docs). We have condensed them (with references to the original documents so you can check the derivation for yourself) into the following table.

In the following table the word "Effects" refers to the number of separable effects predicted by the model. A separable effect is one that can be verified by experiment independently of other effects. For the most part, the number of effects is related to the number of vector terms.

Effect	Point charge form	Effects (Terms)	Field shape
Electrostatics (Coulomb)	$\mathbf{F} = \dfrac{K_E Q_S Q_T \hat{\mathbf{r}}}{\left| \mathbf{r} \right|^2}$	1 see text	Spherical
Magnetism	$\mathbf{F} = \dfrac{\mu Q_S Q_T}{4\pi \left| \mathbf{r} \right|^2} \left[(\mathbf{v}_T \bullet \hat{\mathbf{r}}) \mathbf{v}_S - (\mathbf{v}_S \bullet \mathbf{v}_T) \hat{\mathbf{r}} \right]$	2	Transverse
Induction	$\mathbf{F} = \dfrac{K_M Q_S Q_T \left((\mathbf{a}_S \times \hat{\mathbf{r}}) \times \hat{\mathbf{r}} \right)}{\left| \mathbf{r} \right|^2}$	1	Transverse

Table 1: Classical Electromagnetism (new derivation)

Notes:
1) For the derivation of the induction model, see the original V1 paper v1/ne.pdf section 3.3.3
2) For the derivation of the magnetism model see the_secrets_of_qvxb.pdf.
3) The Electrostatics model is Coulomb's law.
4) Induction and magnetism are both based on a magnetic field. They are treated as separate fields for the sake of discussion.

The field shape refers to the distribution of the "field" about a charge. Both Induction and Magnetism are based on the Biot-Savart model of the magnetic field which predicts maximum field intensity transverse to a moving change and zero field intensity longitudinally about (for and aft) a

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moving charge. Thus, classical induction and magnetism are transverse fields.

Coulomb's law is a spherical field since the field intensity at a given distance from a charge is the same in all directions.

An astute person may claim that the induction model shown above is actually two terms (and thus two effects). If we apply the well known vector identity $A \times (B \times C) \equiv (A \bullet C)B - (A \bullet B)C$ we obtain two terms from the induction model as such:

$$\mathbf{F} = \frac{K_M Q_S Q_T \left((\mathbf{a}_S \bullet \hat{\mathbf{r}})\hat{\mathbf{r}} - \mathbf{a}_S \right)}{|\mathbf{r}|^2}$$

To discus the "two terms" in proper perspective, multiply by -1/-1 to yield

$$\mathbf{F} = -\frac{K_M Q_S Q_T \left(\mathbf{a}_S - (\mathbf{a}_S \bullet \hat{\mathbf{r}})\hat{\mathbf{r}} \right)}{|\mathbf{r}|^2}$$

From the above equation, it is plain to see that the transverse induction model is obtained by subtracting a "longitudinal component" $(\mathbf{a}_S \bullet \hat{\mathbf{r}})\hat{\mathbf{r}}$ from a "spherical component" $\mathbf{a}_S$ (Which is identical to New Induction). If we consider the spherical field to be the composite of both the longitudinal and transverse components (at least 2 effects), then subtracting the longitudinal effect from the spherical effect is 2-1=1; that's why we consider the classical induction model as a 1 effect model. More precisely, the effects based on $(\mathbf{a}_S \bullet \hat{\mathbf{r}})\hat{\mathbf{r}}$ and $\mathbf{a}_S$ are inseparable; meaning that you can not measure $(\mathbf{a}_S \bullet \hat{\mathbf{r}})\hat{\mathbf{r}}$ independently and get the proper answer. More to the point, classical theory predicts no longitudinal effects; therefore you should not (according to classical theory) be able to directly test $(\mathbf{a}_S \bullet \hat{\mathbf{r}})\hat{\mathbf{r}}$.

Coulomb's Law is assigned a 1 for the number of effects. The reason for this is that Coulomb forces provide for a spherical field regardless of charge motion. Therefore, even if the Coulomb field is composed of separate field effects, it is not known it this time how to isolate them.

2 New Electromagnetism Ver1 (V1)

(Look in the Distinti.com/docs/v1 directory for V1 versions of the papers listed below)

Many years ago, I happened upon an article which stated that the "springiness" in a spring is cause by Coulomb forces in the metallic structure of the spring. Then I was hit with an epiphany—Since a capacitor (which also operates based on coulomb forces) is the electronic "analog" of a spring, then why can't the electronic analog of inertia (the inductor) actually be the mechanism of inertia (see v1/ne.pdf and v1/ng.pdf for V1 treatments of this topic). It is well known that Einstein found the bridge between gravity and inertia then spent the rest of his life trying to find the bridge between electromagnetism and gravity/inertia. The bridge between gravity and electromagnetism (called the theory of everything, or the grand unified theory) has been the holy grail of science for many years. Could the Unified Field theory be a simple link between inertia and inductance?

I set out on this quest armed only with classical theory; to my chagrin and many weeks of research, it found it was not possible to do this (otherwise; I assumed, someone would have already done it). So to test my understanding of classical theory, I tried to derive the inductance of a single loop inductor from classical theory; to my surprise, I found this to be impossible to do (Derivations found in graduate level physics texts are incorrect see ind_jackson.pdf). The more I researched classical theory, the more I found anomalies and contradictions (see apoce.pdf).

Because of the Anomalies, I pulled a Wright brother's stunt: I threw out my education and assumed that the phenomenon of Induction needed to be "re-explored" from the ground up. After many experiments and intensive computer modeling I found the following "Spherical" field model which seems to explain things nicely:

$$\mathbf{F} = -\frac{K_M Q_S Q_T \mathbf{a}_S}{|\mathbf{r}|}$$

Equation 1: New Induction (see ni.pdf)

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When added to the classical models the number of separable effects increase by one.

Effect		Point charge form	Effects	Field shape
Electrostatics		$$\mathbf{F} = \frac{K_E Q_S Q_T \hat{\mathbf{r}}}{|\mathbf{r}|^2}$$	1	Spherical
Magnetism		$$\mathbf{F} = \frac{\mu Q_S Q_T}{4\pi|\mathbf{r}|^2}[(\mathbf{v}_T \bullet \hat{\mathbf{r}})\mathbf{v}_S - (\mathbf{v}_S \bullet \mathbf{v}_T)\hat{\mathbf{r}}]$$	2	Transverse
New Induction (NI)		$$\mathbf{F} = -\frac{K_M Q_S Q_T \mathbf{a}_S}{|\mathbf{r}|}$$	2	Spherical

Table 2: New Electromagnetism Version 1 (V1)

(Look in the Distinti.com/docs/v1 directory for the v1 versions of these)
With just the above change it is possible to do the following

1) Derive inertia as a purely electromagnetic phenomenon (ne.pdf)
2) Derive E=MC^2 from New Electromagnetism (ne.pdf)
3) Derive the mass of an electron (ne.pdf)
4) Derive the mass of a hydrogen atom (ne_hydrogen.pdf)
5) Derive Time Dilation as a purely magnetic effect (ne.pdf,ng.pdf)
6) Explain that gravity, inertia, induction are one and the same (ng.pdf)
7) Derive the black hole equation (Schwarzschild radius) (ng.pdf)
8) Show that the energy contained in matter is the same to all observers in all reference frames (ng.pdf)
9) Show that matter collapses when its speed exceeds the speed of light.(ng.pdf)
10) Given a theoretical explanation of what happens when an object exceeds the speed of light, a theoretical work-a-round to enable Faster Than Light Starship Travel is proposed (ng.pdf – conclusion)
11) Many other interesting things are found in the free papers (all found at www.distinti.com/docs)

Note: Most of the free papers are based on the V1 equations; however, all discussions are equally applicable to the newer versions.

3 New Electromagnetism V2

(Look in the Distinti.com/docs/v2 directory for V2 versions of the papers listed below)

The V1 equations are capable of many wonderful predictions and solve many problems that are not solvable using CE, however, there are still some things that are not correct. After some thought (see New Magnetism nm.pdf for more driving thoughts); I realized that if Induction is a spherical field, then magnetism must also be a spherical field. From this chain of thought, New Magnetism was developed (see secrets_of_qvxb.pdf for a different way to derive New Magnetism). The following chart shows the inclusion of New Magnetism.

Effect	Point charge form	Effects	Field shape
New Induction (NI)	$\mathbf{F} = -\dfrac{K_M Q_S Q_T \mathbf{a}_S}{\lvert \mathbf{r} \rvert}$	2	Spherical
New Magnetism (NM)	$\mathbf{F} = \dfrac{K_M Q_S Q_T}{\lvert \mathbf{r} \rvert^2} [(\mathbf{v}_T \bullet \hat{\mathbf{r}})\mathbf{v}_S - (\mathbf{v}_S \bullet \hat{\mathbf{r}})\mathbf{v}_S - (\mathbf{v}_S \bullet \mathbf{v}_T)\hat{\mathbf{r}}]$	3	Spherical
Electrostatics	$\mathbf{F} = \dfrac{K_E Q_S Q_T \hat{\mathbf{r}}}{\lvert \mathbf{r} \rvert^2}$	1	Spherical

Table 3: New Electromagnetism Version 2 (V2)

The V2 equations contain 2 more effects than CE; furthermore, V2 fields are all spherical, not transverse.

See the New Magnetism book (v2/nm.pdf) for an exhaustive proof of New Magnetism plus a complete explanation on how to use it properly.

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4 New Electromagnetism V3

(Look in the Distinti.com/docs directory for V3 papers – to be available by May 20 2007)

New Electromagnetism V3 does not introduce any new effects; instead it revises definitions and terminology to express electromagnetic effects with more fidelity. Though a more formal publication is in the works; here is what can be expected:

4.1 Outlaw "Law"

Science likes to call its mathematical models "Laws" (I too am guilty of this); unfortunately, it gives the impression that the mathematical models are irrefutable and complete or worse: that nature is obliged to obey them.

We have to realize that our mathematical models are just "mimics" of the behavior of physical events. There is no guarantee that any given model represents the exact physical mechanism governing a natural event in all detail.

When I tell people that the "B field abstraction" is not a sufficient representation of a magnetic field (see v2\secrets_of_qvxb.pdf); the most common reaction I get is: "Without a magnetic field, then how do magnets work?" It seems too many people have "fused" the actual physical manifestation with the "cartoon like" abstractions we use to model them with. In other words, If I say that the Road Runner cartoon is not a complete representation of the behavior of Coyotes and Road Runners, most people would agree; however, if you were a "shut in" whose knowledge of the world is based solely on cartoons, then you would react defensively to my statement because you have no other experience to temper your false belief that there is no other representation for the given phenomena. There is no LAW that states that there can only be one correct model to a given natural phenomenon. In fact, in the search for New Induction (see v2\ni_newman.pdf) the computer found over 58 mathematical models that fit the experimental data. Two of those 58 gave identical results—one described a longitudinal field, the other a spherical field – see the paper for more details.
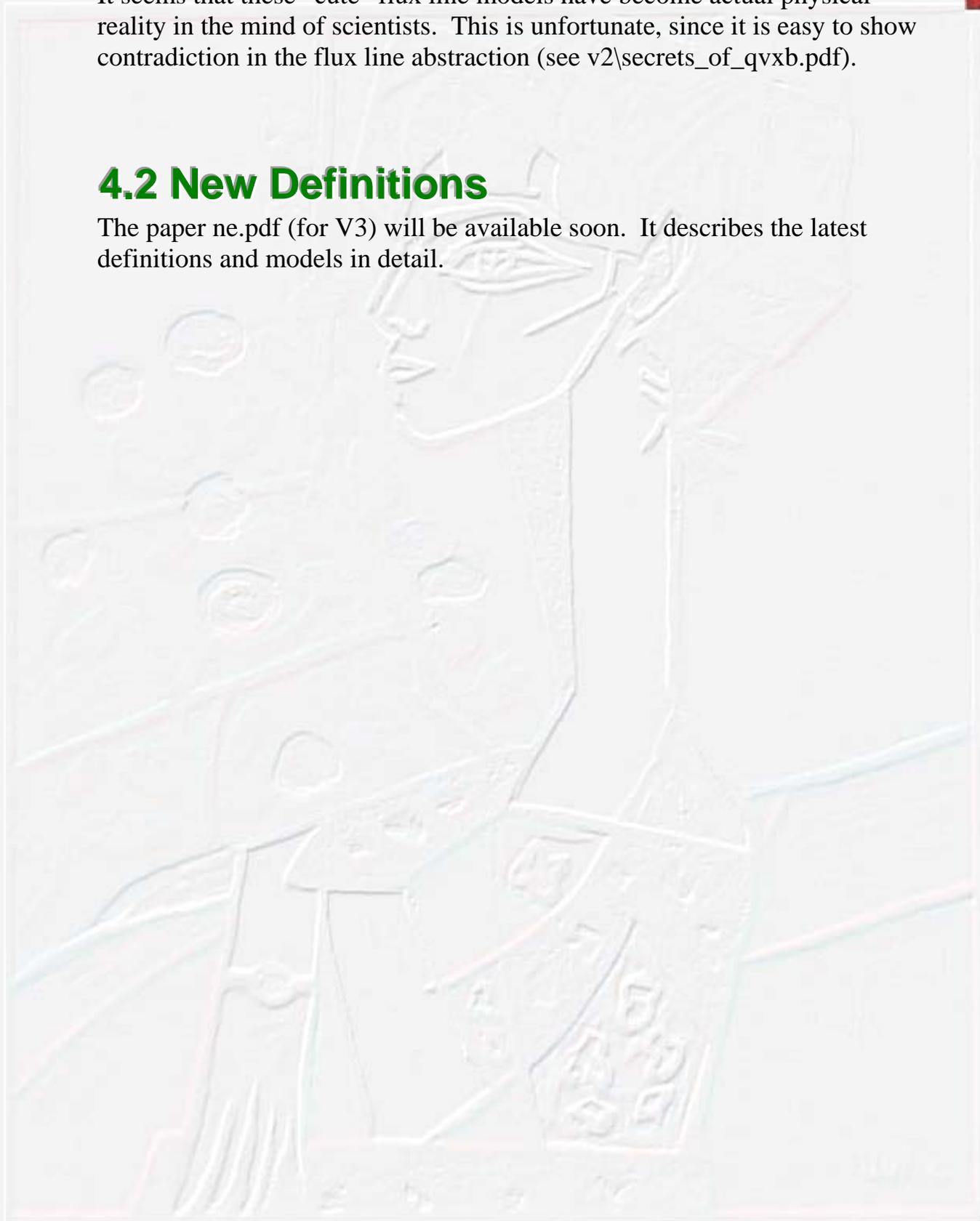
It seems that these "cute" flux line models have become actual physical reality in the mind of scientists. This is unfortunate, since it is easy to show contradiction in the flux line abstraction (see v2\secrets_of_qvxb.pdf).

4.2 New Definitions

The paper ne.pdf (for V3) will be available soon. It describes the latest definitions and models in detail.

5 Conclusion

This paper will be revised as the V3 changes are solidified